Feed the Future Country Fact Sheet

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With Feed the Future Support, Grain Legumes Boost Nutrition

Mario Tello

Agronomist Gabriela Mishel Villatoro Fuentes with Carlos Carmelino Dominguez González and son.

“Grain legumes” is the technical way to describe some of the most basic foods available: beans, lentils, and peas all fall under this category. These nutrient-dense staple crops have historically been cultivated for their protein and are considered “low-hanging fruit” in the fight against undernutrition, since they are already familiar in many diets around the world.

The Feed the Future Legume Innovation Lab, led by Michigan State University, is undertaking a number of projects to maximize the potential of these common food staples to combat undernutrition and food insecurity.

In Guatemala, for example, the Feed the Future Legume Innovation Lab is supporting a project to promote protein-packed black beans among smallholder farmers, distributing disease-resistant bean varieties adapted for high elevations. Carlos Dominguez, a smallholder coffee farmer in the western highlands of Guatemala, recently harvested 200 pounds of black beans as a result of the seed allocation and training he received on improved soil fertility and pest management practices. This means he will be able to provide 100 pounds of food for his family and retain enough seed for the next planting season. The remaining profits will help Dominguez’s family stay food-secure in a region where climate change and plant diseases have made it increasingly difficult to grow crops including grain legumes.

In conjunction with these efforts to increase bean production, Feed the Future is supporting nutrition educators who visit remote villages to educate women and men about the importance of greater dietary diversity and how eating more beans can help improve children’s growth and long-term health. At nutrition fairs, the educators share easy recipes for a bean-fortified maize porridge for infants to replace their traditional diet of atole, a maize-sugar beverage high in calories but low in nutrients.

On the other side of the globe, the Grain Legumes Innovation Lab is bringing physicians and scientists together to combat child undernutrition in Malawi, where nearly half of children under the age of five are stunted. One of the pervasive causes of undernutrition among children is an asymptomatic chronic inflammatory gut condition called environmental enteropathy, which occurs when young children are exposed long-term to an unsanitary environment, including unhygienically prepared complementary foods. The project’s researchers are investigating whether easily digestible grain legumes – in lieu of more traditional staples like maize, cassava and sorghum – can help reduce environmental enteropathy in young children by improving gut health. Cowpea, for example, has three to four times more protein per gram than corn and may have anti-inflammatory effects.

To test this theory, researchers are conducting two trials among different age groups to investigate the effect of common bean and cowpea consumption on infant and toddler gut health and growth. These experiments will contribute to a clearer understanding of whether a grain legume supplement can contribute to children's increased growth and reduced risk of environmental enteropathy compared to children who receive standard food supplements. If so, grain legumes will represent an exciting new front in the battle to end millions of child deaths resulting from undernutrition and improve the long-term potential for children and economies to grow strong and healthy.